22. (New) The ammonia synthesis catalyst of claim 21, wherein cobalt metal is present at a concentration of from 0.1 to 3.0 wt%; titanium metal is present at a concentration of from 0.14 to 0.95 wt%; aluminum metal is present at a concentration of from 1.5 to 1.8 wt%; potassium is present at a concentration of from 0.4 to 0.5 wt%; calcium is present at a concentration of from 1.6 to 1.8 wt%; magnesium is present at a concentration of from 0.3 to 0.5 wt%, and the balance being iron oxides with natural impurities.

23. (New) The ammonia synthesis catalyst according to claim 21, wherein the iron oxides have an atomic ratio of Fe^{2+}/Fe^{3+} of between 0.5 to 0.65.

24. (New) The ammonia synthesis catalyst of claim 21, wherein cobalt metal is present at a concentration of from 0.35 to 3.0 wt%; titanium metal is present at a concentration of from 0.38 to 0.95 wt%; aluminum metal is present at a concentration of from 1.5 to 1.8 wt%; potassium is present at a concentration of from 0.4 to 0.5 wt%; calcium is present at a concentration of from 1.6 to 1.8 wt%; magnesium is present at a concentration of from 0.3 to 0.5 wt%, and the balance being iron oxides with natural impurities.

25. (New) An ammonia synthesis catalyst, comprising iron oxides and promoters, wherein the promoters comprise both a cobalt oxide and a titanium oxide, in addition to an aluminum oxide, a potassium oxide, a calcium oxide and a magnesium oxide, wherein cobalt metal is present at a concentration of from 0.1 to 3.0 wt%, and titanium metal is present at a concentration of from 0.1 to 1.0 wt%.

26. (New) The ammonia synthesis catalyst of claim 25, wherein titanium metal is present at a concentration of from 0.14 to 0.95 wt%; aluminum metal is present at a concentration of from 1.5 to 1.8 wt%; potassium is present at a concentration of from 0.4 to 0.5 wt%; calcium is present at a concentration of from 1.6 to 1.8 wt%; and magnesium is present at a concentration of from 0.3 to 0.5 wt%.

27. (New) The ammonia synthesis catalyst of claim 25, wherein cobalt metal is present at a concentration of from 0.35 to 3.0 wt%; titanium metal is present at a concentration of from 0.38 to 0.95 wt%; aluminum metal is present at a concentration of from 1.5 to 1.8 wt%; potassium is present at a concentration of from 0.4 to 0.5 wt%; calcium is present at a concentration of from 1.6 to 1.8 wt%; magnesium is present at a concentration of from 0.3 to 0.5 wt%, and the balance ~~being~~ iron oxides with natural impurities.

28. (New) The ammonia synthesis catalyst according to claim 25, ~~which~~ consists essentially of iron oxides, cobalt oxide, titanium oxide, aluminum oxide, potassium oxide, calcium oxide and magnesium oxide.

29. (New) The ammonia synthesis catalyst according to claim 25, wherein the iron oxides have an atomic ratio of Fe^{2+}/Fe^{3+} of between 0.5 to 0.65.

30. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 21.

31. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 22.

32. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 24.

33. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 25.

34. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 26.

35. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 27.

36. (New) In a process for the catalytic synthesis of ammonia, wherein H_2 and N_2 are contacted with an ammonia synthesis catalyst to catalyze the reaction of H_2 and N_2 to form ammonia, the improvement which comprises using as said ammonia synthesis catalyst the catalyst of claim 21.

37. (New) In a process for the catalytic synthesis of ammonia, wherein H_2 and N_2 are contacted with an ammonia synthesis catalyst to catalyze the reaction of H_2 and N_2 to form ammonia, the improvement which comprises using as said ammonia synthesis catalyst the catalyst of claim 22.

38. (New) In a process for the catalytic synthesis of ammonia, wherein H_2 and N_2 are contacted with an ammonia synthesis catalyst to catalyze the reaction of H_2 and N_2 to form ammonia, the improvement which comprises using as said ammonia synthesis catalyst the catalyst of claim 24.

39. (New) In a process for the catalytic synthesis of ammonia, wherein H_2 and N_2 are contacted with an ammonia synthesis catalyst to catalyze the reaction of H_2 and N_2 to form ammonia, the improvement which comprises using as said ammonia synthesis catalyst the catalyst of claim 25.

40. (New) In a process for the catalytic synthesis of ammonia, wherein H_2 and N_2 are contacted with an ammonia synthesis catalyst to catalyze the reaction of H_2 and N_2 to form ammonia, the improvement which comprises using as said ammonia synthesis catalyst the catalyst of claim 26.